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10/672,442	09/26/2003	Chandandumar Aladahalli	DB001050-001	8430

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EXAMINER

HIRL, JOSEPH P

ART UNIT	PAPER NUMBER
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2129

MAIL DATE	DELIVERY MODE
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08/27/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary

Application No.

10/672,442

Applicant(s)

ALADAHALLI ET AL.

Examiner

Joseph P. Hirl

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to an AMENDMENT entered June 18, 2007 for the patent application 10/672442 filed on September 26, 2003.
2. All prior office actions are fully incorporated into this Final Office Action by reference.

Status of Claims

3. Claims 1-44 are pending in this application.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Examiner's Note (EN): Applicant is invited to review MPEP 2111.01, Plain Meaning and the guidance provided in *In re American Academy of Science Tech Center*, 367 F.3d 1359, 1369, 70 USPQ2d 1827, 1834 (Fed. Cir. 2004).

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Specifically: "Although claims of issued patents are interpreted in light of the specifications, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims must be interpreted as broadly as their terms reasonably allow. The term "step size" is used many times in the specification but is not explicitly defined.

The term "metric" is used to a lesser degree in the specification but is also not explicitly defined. At ¶ 0025 of the specification, applicant states: "The present disclosure is directed to a method of performing a pattern based search characterized by driving the search with a metric other than step size." However, in the next statement, applicant states: For example, the metric can be based on a change in value of an objective function or the sensitivity of the objection to component moves." The change in value of the objective function is based some value which has a step size from some other value ... hence "change in value of the objective function." Further, sensitivity of the objection to component moves will be based on a component move which will be a move from some previous value and hence "sensitivity of the objection to component moves" is based on step size. Further, "step size" is a "metric" and a "metric" is "step size." ¶ 0026 cites the following: "The present disclosure is also directed to a method of determining the effect of a plurality of moves on a set of components and performing a pattern based search based on the determining. The determining may include ranking each of the plurality of moves from highest to lowest ranking. The ranking can be performed analytically, probabilistically, or heuristically. The determining may additionally be comprised of dividing the

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range between highest and lowest rankings into a plurality of intervals and assigning each of the moves to one of the intervals. The assigning may be performed according to either a geometric progression based on the rankings or the rankings themselves." Such a "determining" process does not exclude "step size" established by the intervals in the ranking process.

In essence, components map to data, pattern search maps to classifying, classifying maps to model to define layout. Selection or driving of search is done by objective function. Inter alia the basis for using the prior art of Lundahl in anticipation.

Applicant's claims are written in such a manner that they invite prior art under sections 102 or 103.

5. Claims 1-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Lundahl et al (USPN 6,636,862, referred to as **Lundahl**).

Claims 1, 23

Lundahl anticipates performing a pattern-based search on a computer, and outputting a component layout resulting from said pattern-based search, said method characterized by driving the search with a metric other than step size (**Lundahl**, c 38:19-54; Examiner's Note (EN): ¶ 13 applies;. Minimizing a given objective function is the same as generalizing or broading a pattern based search ... they both are subject to constraining criteria and result in identifying a solution that satisfies such criteria; f_x is a metric; see Lundahl @ c42:20-32 re

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networked personal computer; component layout is the output of the analysis effort; applicant's pattern based search is not limited ... it could involve anything).

Claims 2, 24

Lundahl anticipates wherein the metric for driving the search is based on a change in value of an objective function (**Lundahl**, c 38:19-54; EN: the objective function is the metric).

Claims 3, 25

Lundahl anticipates the metric for driving the search is a sensitivity of an objective function to component moves (**Lundahl**, c 38:19-54; EN: component moves are those characteristics that make up the objective function).

Claims 4, 26

Lundahl anticipates determining the effect of a plurality of moves on a set of components (**Lundahl**, c 38:19-54; EN: component moves are those characteristics that make up the objective function); and performing a pattern based search on a computer in response to said determining; and outputting a component layout resulting from said pattern based search (**Lundahl**, c 38:19-54; EN: component moves are those characteristics that make up the objective function).

Claims 5, 27

Lundahl anticipates said determining includes ranking each of said plurality of moves based on the change each move has on an objective function and ordering said moves from highest to lowest ranking (**Lundahl**, c 32:5-22).

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Claims 6, 12, 17, 22, 28, 34, 39, 44

Lundahl anticipates said ranking includes one of analytically, probabilistically and heuristically ranking (**Lundahl**, c 32:5-22; EN: analytically concerns any numeric process).

Claims 7, 13, 18, 29, 35, 40

Lundahl anticipates dividing the range between highest and lowest rankings into a plurality of intervals, and assigning each of the moves to one of said intervals (**Lundahl**, c 32:5-22; EN: ¶ 15 applies; moves refer to any change in a variable or metric).

Claims 8, 14, 19, 30, 36, 41

Lundahl anticipates assigning is performed according to one of a geometric progression based on said rankings and said rankings themselves (**Lundahl**, c 32:5-22; EN: ¶ 15 applies).

Claims 9, 31, 43

Lundahl anticipates determining includes deriving a function that relates moves to changes in an objective function (**Lundahl**, c 38:19-32; EN: moves are synonymous with changes to the objective function).

Claims 10, 15, 20, 32, 37, 42

Lundahl anticipates determining includes determining the non-intersecting volume between an object and itself after applying a move (**Lundahl**, c 2:36-55; EN: the non-interesting volume between something and itself is the region excluding something or it is just the cluster).

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Claims 11, 16, 33, 38

Lundahl anticipates ranking each of a plurality of moves on a set of components based on the effect each move has on an objective function; and ordering the moves within a computer program for performing a pattern based search from those moves having the highest ranking to those moves having the lowest ranking (**Lundahl**, c 32:5-22; EN: calibration process).

Claim 21

Lundahl anticipates deriving a function that relates moves to changes in an objective function and organizing the moves within a program for performing a pattern-based search based on said function (**Lundahl**, c 38:19-32; EN: such is the maximizing of the objective function).

Response to Arguments

6. The rejection of claims 1-44 under 35 USC § 101 is withdrawn.
7. Applicant's arguments filed on June 18, 2007 related to Claims 1-44 have been fully considered but are not persuasive.

In reference to Applicant's argument:

Lundahl is directed to a very different problem than the instant invention as the abstract of Lundahl illustrates:

In a method and system for the dynamic analysis of data represented in distinct matrices, if two data matrices X and Y are present in which corresponding rows of X and Y each refer to the same underlying object, a relationship can developed between the X and Y data matrices, which allows for a prediction of responses in Y on the basis of inputted X-data. And, if a third data matrix Z is present in which corresponding columns of Y and row of Z each refer to the same underlying object, a relationship can developed between the X Y and Z data matrices, which allows for link between X and Z through Y. (**Lundahl** - Abstract)

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Lundahl discloses a method and system for the dynamic analysis of data related to consumer choice modeling or quality control programs. (See Lundahl, column 1, lines 24-26, and column 8, lines 43-67). Lundahl's use of X, Y, Z matrixes for storing consumer choice or quality control data is merely a naming convention for the matrixes, and the matrixes have no correlation with the x, y, z axes. Lundahl has nothing to do with pattern based searching, which is the subject matter of the instant application. See Second Declaration of Dr. Aladahalli submitted herewith, paragraphs 5-9. Dr. Aladahalli is at least a person of ordinary skill in the art. See Second Declaration, paragraphs 1-4.

Examiner's response:

¶ 11. applies. Guidance provided in MPEP 2131.05 from Twin Disc, Inc. v. United States. 231 USPQ 4717, 424 (Cl. Ct. 1986) is appropriate. Specifically: Arguments that the alleged anticipatory prior art ... 'teaches away from the invention' or is not recognized as solving the problem solved by the claimed invention, are not 'germane' to a rejection under section 102." Classifying is synonymous with pattern matching. ¶ 5. and 6. of applicant's Second Declaration (SD) seem to accept the concept of step size contrary to the concept of claim 1. However, neither applicant's ¶ 5. or ¶ 6. clarify the meaning of Metric and step size. Applicant's ¶ 8. and 9. address that Lundahl teaches cluster analysis of the y data (components) which allows for a prediction (component layout) on the basis of the inputted X- data (cluster) ... see Lundahl abstract and Fig. 1 ... albeit in different terms.

In reference to Applicant's argument:

The Office cites Lundahl, column 38, lines 19-54, and column 42, lines 20-32, as allegedly anticipating claims 1 and 23. Claims 1 and 23 have been amended to recite outputting a "component layout resulting from said pattern based search."

Lundahl, at column 38, lines 19-54, does not disclose a method for solving packing and component layout problems and therefore cannot output a component layout. Lundahl, at column 38, lines 19-54, does not describe performing a pattern based search. Lundahl, at column 38, lines 19-54 describes the general problem where the goal is to find the minimum of a given objective function. The cited portion of Lundahl says nothing about the solution to the problem

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other than the suggestion to use a third-party (Mathworks) routine called SIMPS. The cited portion says nothing about how to solve packing and component layout problems. The cited portion says nothing about what metric is used to drive the search. See Second Declaration of Dr. Aladahalli, paragraphs 10, 11, and 13.

Examiner's response:

¶ 11. applies. From Lundahl, such "component layout resulting from said pattern based search" is represented by Lundahl by cluster analysis of the y data which allows for a prediction (component layout) on the basis of the inputted X-data (cluster) ... see Lundahl abstract and Fig. 1. The packing and component layout problems are clustering problems that are solved by the modeling in 1005.

Applicant has not cited the claim to which the above response is directed.

Packing and component layout problem as describe by the applicant can be translated into the clustering and prediction problem of Lundahl. Above discussion regarding MPEP 2131.05 applies. Applicant's statement at ¶ 10. and 11. of SD imply that terminology of the prior art must match that of the applicant's specification ... MPEP 2131.05 applies to the contrary. Applicant's invention is one of classifying (data) into solution considerations. Finding a minimum of a given objective function is solution to the problem. Applicant has not defined what a metric actually is. The Authorative Dictionary of IEEE Standards Terms defines a metric to be: "A quantitative measure of the degree to which a system, component, or process possesses a given attribute." f_x represents variables (x) which are fixed and metric ... plurality of metric.

In reference to Applicant's argument:

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Lundahl does not disclose "moves," Lundahl does not disclose "a set of components," and therefore, Lundahl cannot disclose the "effect of a plurality of moves on a set of components" or "outputting a component layout resulting from said pattern based search." The examiner's statement that "component moves are those characteristics that make up the objective function" makes no sense in the context of the cited portion of Lundahl, because the cited portion of Lundahl does not disclose "components" or "moves" for components. See Second Declaration of Dr. Aladahalli, paragraphs 15 and 16.

Examiner's response:

¶ 11. applies. Applicant defines move sets to be patterns or translation of patterns (specification ¶ 0015). Such would be Lundahl's teachings on classification and related objective function ... evaluation of the related classification.

In reference to Applicant's argument:

The Office cites Lundahl, column 38, lines 19-32, as allegedly anticipating claims 21 and 43. The examiner's statements are incorrect because Lundahl does not disclose "moves." Because Lundahl does not disclose "moves," it is not possible for Lundahl to disclose "deriving a function that relates moves to changes in an objective function." The examiner's statement that "moves are synonymous with changes to the objective function" is incorrect. "Moves," as that term is used in the pattern based search field, may or may not result in changes to the objective function. They are not, however, synonymous with changes to the objective function. See Second Declaration of Dr. Aladahalli, paragraphs 17 and 18.

Examiner's response:

¶ 11. applies. Applicant defines move sets to be patterns or translation of patterns (specification ¶ 0015). Such would be Lundahl's teachings on classification and related objective function ... evaluation of the related classification.

In reference to Applicant's argument:

The Office cites Lundahl, column 32, lines 5-22, as allegedly anticipating claims 11, 16, 33, and 38. The examiner's statement that "Lundahl anticipates ranking each of a plurality of moves on a set of components based on the effect each move has on an objective function; and ordering the moves from those moves having the highest ranking to those moves having the lowest ranking" is incorrect because Lundahl does not disclose "moves." The examiner's statement is incorrect because Lundahl does not disclose "a set of components." Therefore, it is impossible for Lundahl to disclose "ranking each of the plurality of moves on a set of components based on the effect

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each move has on an objective function." Furthermore, Lundahl does not disclose "ordering the moves from those moves having the highest ranking to those moves having the lowest ranking." See Second Declaration of Dr. Aladahalli, paragraphs 19

Examiner's response:

¶ 11. applies. Applicant defines move sets to be patterns or translation of patterns (specification ¶ 0015). Such would be Lundahl's teachings on classification and related objective function ... evaluation of the related classification. "A set of components" is a data set that can be classified and then ranked based on the effect on the objective function in the process of determining the end result ... component layout.

Examination Considerations

8. The claims and only the claims form the metes and bounds of the invention. "Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP p 2100-8, c 2, I 45-48; p 2100-9, c 1, I 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

9. Examiner's Notes are provided with the cited references to prior art to assist the applicant to better understand the nature of the prior art, application of such prior art and, as appropriate, to further indicate other prior art that maybe applied in other office actions. Such comments are entirely consistent with the intent and spirit of compact prosecution. However, and unless otherwise stated, the Examiner's Notes are not prior art but a link to prior art that one of ordinary skill in the art would find inherently appropriate.

10. Unless otherwise annotated, Examiner's statements are to be interpreted in reference to that of one of ordinary skill in the art. Statements made in reference to the condition of the disclosure constitute, on the face of it, the basis and such would be obvious to one of ordinary skill in the art, establishing thereby an inherent prima facie statement.

11. Examiner's Opinion: ¶¶ 8.-10. apply. The Examiner has full latitude to interpret each claim in the broadest reasonable sense.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is

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filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Claims 1-44 are rejected.

Correspondence Information

14. Any inquiry concerning this information or related to the subject disclosure should be directed to the Primary Examiner, Joseph P. Hirl, whose telephone number is (571) 272-3685. The Examiner can be reached on Monday – Thursday from 5:30 a.m. to 4:00 p.m.

As detailed in MPEP 502.03, communications via Internet e-mail are at the discretion of the applicant. Without a written authorization by applicant recorded in the applicant's file, the USPTO will not respond via e-mail to any Internet correspondence which contains information subject to the confidentiality requirement as set forth in 35 U.S.C. 122. A paper copy of such correspondence will be placed in the appropriate patent application. The following is an example authorization which may be used by the applicant:

Notwithstanding the lack of security with Internet Communications, I hereby authorize the USPTO to communicate with me concerning any subject matter related to the instant

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application by e-mail. I understand that a copy of such communications related to formal submissions will be made of record in the applications file.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, David R. Vincent can be reached at (571) 272-3080.

Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks,

Washington, D. C. 20231;

Hand delivered to:

Receptionist,

Customer Service Window,

Randolph Building,

401 Dulany Street,

Alexandria, Virginia 22313,

(located on the first floor of the south side of the Randolph Building);

or faxed to:

(571) 273-8300 (for formal communications intended for entry.

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A handwritten signature in black ink, appearing to read 'J. Hirl', written over the printed name.

Joseph P. Hirl
Primary Examiner
August 20, 2007